

EFFECTIVENESS OF WEB-BASED LEARNING MODEL AT VOCATIONAL EDUCATION

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Abstract

This study develops a WEB -based learning model for vocational schools , particularly in subjects KKPI (PKKPI-WB). This study is the research and development of education (Educational Research & Development). Result paired two-sample t test (paired samples t - test) showed the Sig = 0.149 $> \alpha = 0.05$ level, so it can be interpreted that there is a linear and positive nature between pretest and posttest variables. This suggests that if there is the student who at the time of the pretest value is good, then after a given treatment is then given a posttest, the value would be the better. Based on the analysis of data obtained value of t-test = 19.068 with sig. (2 - tailed) = 0.000 $< \alpha = 0.05$ level, then there is enough reason to H_0 is accepted, then H_1 is accepted. So there is a statistically significant difference between pretest and posttest. Then when seen in the average value (the mean), it can be said that an increase in learning outcomes from pretest to posttest. Based on the analysis of data obtained t value = 11.847 with sig.(2 - tailed) = 0.000 $< \alpha = 0.05$ level, then H_1 is accepted. So there is a difference between the results of the final test experimental group with the control group. From the research that has been done can be concluded that the learning PPKPI - BW can be done effectively. This is evident from the data the average value of learning outcomes after using PPKPI - BW increased learning outcomes from pretest to posttest. Furthermore, use of instructional models PPKPI - BW is very good to be applied.

Keywords: keywords, effectiveness, web-based

1. Introduction

Vocational School (SMK) aims to produce skilled workers, which is expected to be ready to use as set forth in one of the aims of education at the vocational high school vocational education as part of secondary education and the national education system aims to (1) prepare learners to continue to higher education or expanding primary education, (2) increase the ability of the learner as a member of society in performing a reciprocal relationship with the social environment, culture and the environment, (3) enhance the ability of learners to be able to develop themselves in line with the development of science, technology and art, and (4) prepare learners to enter the work of Field and develop a professional attitude [1].

The ability of teachers demanded optimally manage learning activities, as proposed by Kusmayadi [2] that: "Efforts to achieve effective learning is strongly influenced by the ability of teachers to mastery, mastery of a variety of methods,

selecting and determining instructional media, determining evaluation tools, do instructional design, teaching and teaching evaluation management".

Based on author interviews with several teachers who follow the Professional Teacher Education (PPG) in the Department of Electronics Engineering, Faculty of Engineering Education UNM originating from various regions, including some teachers smkn Makassar, KKPI that subjects tend to use media printed materials, namely printed books by using the method conventional means of teaching and learning activities are concentrated on one side is the teacher. In case the teacher is not the only cypress learning resources, but is one of the existing learning resources.

Mastery learning strategy enables KKPI well students are able to think critically and creatively, and are not burdened by homework assignments. Learning KKPI must follow the rules or how, systematic hierarchical, consistent, and using deductive reasoning. Learning models should be

developed and used in accordance with its rules and characteristics.

In the current era of globalization, learning on how students, emphasizing the active process, students construct their own or build their own knowledge, positioning students as learning resources, provide opportunities for students utilize learning resources. In the education system, students are required to study independently, self-study is not an attempt to alienate learners from friends learning and the teacher/instructor. The most important thing in the process is self-learning and upgrading of skills of learners in the teaching and learning process without the help of others, so that in the end the students are not dependent on the teacher/educator, mentor, friend, or anyone else in the study. In the independent study students will seek to understand the content of the lessons themselves are read or hear of view seen through the media. If you get into trouble, then the students will ask or discuss it with friends, teachers/instructors, or others. Independent learners who will be able to search for learning resources that it needs. The task of the teacher / instructor in a self-learning process is to be a facilitator, be the one who is ready to provide assistance to students when needed. especially aid in determining learning objectives, selecting learning materials and media, as well as in solving difficult problems that cannot be solved solely by learners themselves.

One application is the process of self-learning web-based learning or Web-Based Education (WBE). WBE offers speed and no limitation on the place and time to access the information. Learning activities can be easily done by students anytime and anywhere perceived safe by the learners. Limits of space, distance and time is no longer a complicated problem to solve.

Integration of information technology into education in the form of one of these web-based learning or Web-Based Education (WBE). Various advantages WBE application in addition to some notes weaknesses when compared to conventional learning. Application of WBE obtained some important notes, among other things that the readiness of students to use the computer and its applications need attention. In the application of the

WBE that has been done, students benefit, among others, that the present WBE simulation can assist in understanding the phenomenon being studied, as well as through computer WBE students can learn and recognize its utilization in learning

2. WebBased Learning

Web-based learning is popularly known as Web-Based Training (WBT) or sometimes called Web-Based Education (WBE) can be defined as the application of web technology in the world of learning for an educational process [3]. In simple terms it can be said that all learning using Internet technology and perceived learning occurs during the process by which followed the activities that can be referred to as a web-based learning.

Then offered by this technology is not limited to the speed and the place and time to access the information. Learning activities can be done easily by learners anytime and anywhere perceived safe by the learners. Limits of space, distance and time is no longer a complicated problem to solve.

3 . How to Learn Through WEB

How do I learn via the web ? There are major requirements that need to be met , namely lack of access to resources via the Internet . Furthermore, lack of information about where the location of resources we want to get to be . There are several sources of data that can be accessed freely and free of charge , without accessing complicated administrative process . There are several resources that can only be accessed by those who are already authorized owner resources .

Internet technology makes it easy for anyone to get any information from anywhere and at any time easily and quickly. Information is available in various data centers in various computer in the world. During these computers are connected to the net, we can access from anywhere. It is one of the advantages of learning through the internet .

Realize a web-based learning is not just put on the web to learn the material and then accessed via computer. Web is used not only as an alternative medium for storing paper documentation or information. Web

is used to get a superior side that had been revealed . The advantage that no other media or paper media .

In addition to the Internet infrastructure, web-based learning requires an instructional that was designed specifically for this purpose. An instructional models is a vital component that determines the effectiveness of the learning process. Regardless of instructional modules designed, interactivity among learners, teachers, advocates and the learning material should get special attention. This is not an easy job.

Web page views is a form of computer -written computer languages exist html (hypertext mark-up language) , where the display has an interactive nature and can contain any number of photos/graphics images, music, text and even motion pictures as well as the ability to hyperlink to other file.

Web-based learning is a system or process for carrying out learning activities remotely over the Internet and web applications .Although , in principle, can be run in a web learning local area (LAN) , but is a manifestation of efforts to develop e - learning with a web base .

Web-based learning is a learning activity that utilizes media websites (websites) that can be accessed through the Internet [3]. Web-based learning , known also by the term " web - based learning" is one kind of application of electronic learning (e -learning) .

In one publication on the website about-elearning.com, Association of American Society for Training and Development Activity (The American Society for Training and Development/ASTD, 2009) suggests the definition of e-learning as follows: "E-learning is a broad set of roomates applications and processes include web-based learning, computer- based learning, virtual classrooms and digital. Much of this is delivered via the Internet, intranet, audio and videotape, satellite broadcast, interactive TV, and CD- ROMs. The definition of e -learning varies depending on the organization and how it is used but basically it is involves electronic means of communication , education , and training . "

Web Centric Course is the use of the

internet which combines distance learning and face-to- face (conventional). Most of the material delivered over the internet . Web Enhanced Course is the use of the Internet to support the quality of learning is done in the classroom. Internet functions is to provide enrichment and communication between students and teachers, fellow students, members of the group, or students with another resource.

4 . Elements of Learning Outcomes

Learning outcomes in this study refers to the view [4] which says that the learning outcomes are a key aspect of any learning conditions . Further it is said that there are three elements of learning outcomes are: 1) The level of effectiveness , is related to the extent to which the learning process gives results indicated by how well the achievement of learning objectives . It is seen from the level of mastery associated material . Desired learning outcomes are not related to the elaboration of the learning goal itself but related to how well that goal can be achieved . That is whether the learning model is applied on target or effectively facilitate students master the subject matter KKPI ; 2) The level of efficiency , this is the result of the division with a time of learning effectiveness and students' costs incurred in achieving the learning objectives . That is whether students can take advantage of this learning aid with minimal cost and maximum results; 3) The level of the attractiveness or charm, it can be seen from how the students enjoy the learning process , students ' tendency to want and continue the learning process and so on that reflect students' motivation to use the existing learning support that is Web - based learning model. Observations on the Department of Electronics Engineering Education and the literature review has been carried out, showing that it is necessary in the Web -based learning model KKPI subjects, because of existing learning model for this has not been an efficient and effective way to improve the ability of students achieve the learning objectives KKPI .

Based on the results of the learning expectations set out by the Reigelutie high level of effectiveness, efficient, and showing the need for the development of Web -based

learning model in subjects KKPI, student-centered, anytime, anywhere, studying alone, students can undertake remedial, students can acquire material essence KKPI .

4 . Needs assesement Students on WEB - Based Learning

Students as subjects in this preliminary study consisted of 31 students who have the academic ability of a relatively homogeneous based on the results of the test are given as the initial test . Based on a questionnaire given to the students to determine the needs of the students obtained the following answer.

From the answers given respondent, on item 1 with the question that " if teachers give special time to discuss each learning competency ?" Most of the students answered "yes" on the grounds that in accordance with the provisions of the curriculum (27 people or 87.10 %) and the remaining 4 people (12.90 %) answered " no "friends one hour to answer on the grounds that learning is not achieved . To the question that "Is time provided adequate teachers to consult ? " There are about 25 students (80.56 %) who answered "Yes " to a variety of reasons but the reason often given is that teachers never refused when trying to consult and there 6 students (19.35 %) who answered "no" . Approximately 25 students (80.56 %) who answered "Yes" and 6 students (19.35 %) who answered "no" to the question "Is the teacher always gave feedback after each provide independent assignment ? ". On the question "Is the teacher always gives feedback each completed work on the problems ? " There are 22 students (70.97 %) who answered "Yes " and there were 9 students (29.03 %) who answered " No" . Furthermore, on the question "Is the teacher provides materials in the form of modules, power point, or papers that can be downloaded , which can be studied alone ? " There are 17 students (54.84 %) who answered "Yes " and 14 students (45.16 %) who answered " No" . From this data it was seen that there are still teachers are by and large not upload teaching materials that can be learned by the students . There were 10 students (32.26 %) who answered "Yes" and 21 students (67.74 %) who answered " no "to the question" Are references

provided during this suffice?" . From this data it was seen that the references provided in schools is still very low for learning activities. Then the question "Are the resources provided during this suffice?" "Answered "Yes" by students as many as 15 people (48.39 %) and answered "no" by the students as many as 16 people (51.61 %) on the grounds that the library schools still lack a complete book on vocational subjects . To the question "Are references provided during this date?" "There are 16 students (51.61 %) who answered "yes" and 15 students (48.39 %) who answered "no" . There were 25 students (80.65 %) who answered "Yes" and 6 students (19.35 %) who answered "no" to the question "Is online chat and forums to help you interact with your friends ?" , This data can be seen that the student requires the communication forums to interact with friends in learning , then to the question "If WEB KKPI learning available at school, do you agree if the teacher gives the task independently through the WEB ?" almost all students (30 people or 96.77 %) who answered "Yes" if the site is available in school and learning KKPI agree if teachers give assignments through wEB and only 1 student (3.23 %) who answered "no" . As for the question "Are you willing to open WEB KKPI learning and independent tasks and questions through the Internet outside of school?" There are 5 students (16.13 %) who answered "no" and the remainder (25 people or 83 , 87 %) who answered "Yes" . Related to the previous question may be seen in the results of the assessment that if the instructional WEB KKPI applied then the students would be willing to open WEB KKPI learning and independent tasks and questions through the Internet outside of school. Further to the question " Is learning through WEB KKPI KKPI learning more interesting?" Generally students answered "Yes" (30 people or 96.77 %) and only 1 student (3.23 %) who answered "no" . It can be seen that if the study is carried out through the WEB KKPI it would be more interesting for students. On the question "Is the independent tasks and problems can be resolved through WEB KKPI learning?" There are as many as 27 students (87.10 %) who answered "yes" and the rest (4 people or 12.90 %) answered "no". Based on

student assessment can be seen that the WEB -based learning KKPI will be able to complete the task independently and student questions . Furthermore, on the question " Are you going to take advantage of the learning WEB KKPI as a means of communication ? " There were 25 students (80.65 %) who answered "Yes " that would use it well, and as many as six students (19.35 %) who answered " no " .

From the answers given student can be seen that in general the students feel that the teacher has provided time, responding to what they do, provide enough material for them. Most students feel that the references provided yet sufficient , and they assume that learning resources are also provided insufficient. Most of the students were aided by online chat and forums to interact with his friends, and the majority of students agreed that teachers give assignments independently through the WEB KKPI learning and they feel that learning through the WEB KKPI more interesting.

1) Aspects of Teaching Materials Characteristics

Assessment aspects Teaching Materials characteristics for one -on-one test was performed by 32 students . Components in the characteristic aspect of teaching materials that students easily and quickly access the WEB study obtained a mean score of 4.56 KKPI criteria Very Good, aspects of students easily find material in the WEB -line learning KKPI mean score of 4.69 was obtained with the criteria Very Good, technical aspects students felt just a bit, for example: slow login time, system hangs, the Internet disconnected obtained a mean score of 4.84 with the criterion Very Good, aspects of the learning objectives that help students presented a mean score of 4.75 with the criterion Very Good. The mean scores of aspects characteristic Teaching Materials obtained overall mean score of 4.74 with the criterion very well.

2) Aspects of Student Characteristics

Components of the characteristic aspects of students obtained a mean score of 4.61 with the overall aspects of Very Good overall criteria. In the aspect of student characteristics consists of several aspects of

the guidance teacher helps students obtained a mean score of 4.38 dengnan both criteria , musty Teachers make time to chat with students obtained a mean score of 4.72 with the criterion Very Good, aspects of teacher corrects and give feed back as soon as possible obtained a mean score of 4.63 with the criterion Very Good. Further aspects of the discussion forum facilities can be utilized by the students obtained a mean score of 4.63 with the criterion Very Good. Aspects chat facilities can be utilized between students obtained a mean score of 4.72 with the criterion Very Good.

3) Aspects of organizing

In the aspect of organizing MPBW - KKPI overall mean score of 4.73 was obtained with the criteria Very Good, Aspect material presented in the online module structured and can be accessed easily obtained a mean score of 4.75 with the criterion Very Good, aspects of materials containing information about topics presented assessment results obtained with a mean score of 4.88 with the criterion Very Good. Further aspects of the module presents a number of examples of problem-solving appraisal obtained a mean score of 4.56 with the criterion Very Good .

4) Delivery Strategy Aspects

In the aspect of the delivery of the strategy obtained a mean score of 4.63 with overall Very Good criteria, indicators reflected in the material scope of the menu / link criterion 4.56 Very Good, clear indicators order and easy to follow instructional obtained a mean score of 4.88 with the criterion Very Good, Teachers indicators for informal discussion motivates students obtained a mean score of 4.56 with the criterion Very Good, indicators of teacher initiated learning and close the obtained mean score of 4.50 with the criterion Very Good.

5) Aspects of the management strategy

Aspects of management strategies mean score of 4.57 was obtained with the criterion Very Good, Learning sustainability indicators obtained with the 4.56 mean criterion Very Good . Indicators Students can work on exercises and assignments independently obtained a score of 4.63 with

the criterion Very Good, Student Activities can be monitored every criterion 4.53 with Very Good

6) Aspects of effectiveness

Aspects of the effectiveness of the overall mean score of 4.67 was obtained with the criteria of Very Good . The effectiveness aspect consists of several indicators include indicators Ease of interacting with the media obtained a mean score of 4.59 with the criterion Very Good . The clarity indicator of media usage instructions obtained a mean score of 4.59 with the criterion Very Good . WEB based learning indicator is easy to understand and motivate students more than late learners obtained through face to face with a criterion mean score of 4.81 Very Good .

7) Aspects of efficiency

Aspects of efficiency obtained with the 4.64 average overall score criterion Very Good . Aspect consists of several indicators of efficiency among other programs use efficiency indicators obtained mean score of 4.48 with criterion Very Good, Speed indicator material mean score of 4.86 was obtained with the Excellent criteria, indicators Students can learn faster through the WEB based learning compared to learning obtained through face-to- face with a criterion mean score of 4.58 Very Good .

8) Aspects of the attractiveness

Aspects of the overall attractiveness of the mean score obtained by the students vocational assessment as many as 32 people at 4.67 with the criterion Very Good . In the aspect of attractiveness of the assessment consists of several indicators including indicators of material presented is quite interesting and interrelated obtained a mean score of 4.56 with the criterion Very Good . Text Indicator module is easy to read and understand the average score of 4.69 was obtained with the criterion Very Good , next to the indicator Students are more comfortable learning online rather than face-to -face following study obtained a mean score of 4.63 with the criterion Very Good. Indicators communicate more students to each other by using e-mail and chat than before the use of teaching based WEB 4.63 mean score obtained by the

criterion Very Good. Indicators more students to communicate with teachers using e-mail, chat, than before the use of WEB-based learning assessment scores obtained average 4.66 with criterion Very Good. Indicators of WEB -based learning provides opportunities more frequent contact between the teacher and the students obtained a mean score of 4.72 with the criterion Very Good. Indicator Teachers and technicians interested in learning more frequently following the WEB based on other learning derived from the average score of 4.75 with the criterion Very Good . And the most recent is the indicator of Teachers and technicians prefer to follow than the WEB -based learning through face-to- face learning mean score of 4.75 was obtained with the criterion Very Good .

4 . Description of Requirement Students will be Web-based Lesson

The results showed that students in the habit of using information technology or IT is very high . This has an impact on learning in SMK KKPI to be able to fill the needs of the students towards IT in this regard over the web. So it is appropriate that the implementation of the learning process begin to pay attention to the use of the web as a medium of learning. Based on this research, it is known that the learning needs of students included in the availability of web -based sufficient time to study and consultation , provide material performance form modules , power point, or papers that can be downloaded , which studied alone , is packed with interesting material , sufficient , advanced , interacting with friends , independent tasks through the WEB , independent tasks and questions through the Internet outside of school , can take advantage of the WEB KKPI learning as a means of communication . It is also in line with the results of the study Neng Sri Conservation (2003) suggests that the problems are handled via e-mail services are grouped into learning problems, academic, career, personal and social. Weblog as a product of the development of the internet technology can be very useful assessed media such as e-learning. Utilizing the Internet as a product of today's technology is not a requirement but a requirement anymore

4. Effectiveness Analysis of Web-Based Learning Model

To examine the effectiveness of a WEB-based learning model the learning outcomes KKPI, then conducted an experimental study to observe the students' test results before and after treatment. Pretest an initial test given prior to treatment in the experimental group. Based on observations of preliminary tests conducted at SMK Negeri 5 Makassar with respondents 32 students earned value - average of 61.7188 with a standard deviation of 4.58. Distribution of pretest values of experimental classes are presented in the following table:

Tabel1.Initial Test Data Description(*Pretest*) kelas eksperimen

No	Keterangan	Hasil
1	Rata - rata	61,72
2	Median	63,00
3	Modus	67,00
4	StandarDeviasi	4,58
5	Variansi	20,98
6	Jangkauan (range)	14,00
7	Minimum	53,00
8	Maksimum	67,00
9	Jumlah data	1975,00

Source: Data research results, 2013

The results of the test after treatment (posttest) gives value - average of 85.40 with a median and standard deviation of each - 83.00 and 6.66 respectively. For more posttest results are presented in Table 2 below:

Tabel 2 Description of the final Test Data (*posttest*) eksperimen class

No	Note	Result
1	Rata - rata	85,41
2	Median	83,00
3	Modus	83,00
4	StandarDeviasi	6,66
5	Variansi	44,31
6	Jangkauan (range)	23,00
7	Minimum	77,00
8	Maksimum	100,00
9	Jumlah data	2733,00

Source: data Research, 2013

For more comparison test results are presented in Figure 1.

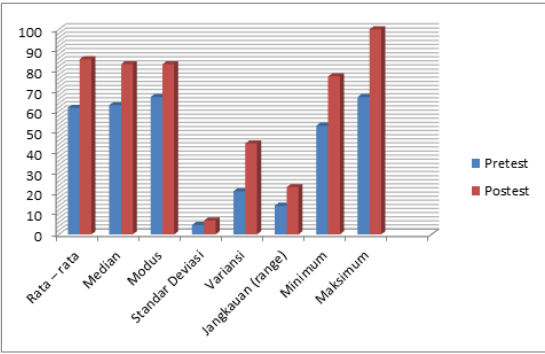


Figure 1.Comparison of pretest and posttest results MPBW-KKPI

After conducting a description of the data, then analyzed using two-sample t-test paired to determine whether there is an increase in student test results SMK Negeri 5 Makassar after using WEB-based learning model for KKPI subjects.

UjiNormalitas

Table 3. Results of normality test pretest and posttest

Kolmogorov-Smirnov Test		Pretest (Tahap II)	Posttest (Tahap II)
	N	32	32
Normal Parameters	Mean	61.7188	85.4063
	Std. Deviation	4.58071	6.65684
Most Extreme Differences	Absolute	.188	.204
	Positive	.124	.204
	Negative	-.188	-.103
	Kolmogorov-Smirnov Z	1.064	1.152
	Asymp. Sig. (2-tailed)	.208	.141
a. Test distribution is Normal.			
b. Calculated from data.			

Source: Data research results, 2013

From the results of the Kolmogorov-Smirnov test mentioned above, the information obtained was that great a significance value for the Kolmogorov-Smirnov test students' test results before treatment (pretest) and after treatment (posttest). Basis for decision making is asymp. significance if the value is greater than 0.05, then the data is categorized meet the assumption of normality. From the Kolmogorov-Smirnov test results appear in the table above asymp. significance value of

0.208 for the pretest and the value asymp sig. 0.141 for posstest. This means that the value of such a value that indicates that students in the pretest and posttest have observational data are normally distributed, because the value is greater than 0.05 Asymp.Signifikansi.

Two sample paired t test

Paired two-sample t test (paired samples t-test) which is also called the within-subjects t-test is usually performed on experimental studies in which the sample is given a certain treatment conditions were then compared with the sample before the treatment. Thus the sample group will serve as a control variable to another variable that gets a certain treatment.

Tabel 4.The results of paired two-sample t test

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Posttest (Tahap II)	85.4063	32	6.65684	1.17677
Pretest (Tahap II)	61.7188	32	4.58071	.80976

Paired Samples Statistics table presents the pretest and posttest values with parameters: mean, sample size, standard deviation, and the average standard error. Paired Samples Correlations table shows the Sig = 0.149 > α = 0.05 level, so it can be interpreted that there is a linear and positive nature between pretest and posttest variables. This suggests that if there is the student who at the time of the pretest value is good, then after a given treatment is then given a posttest, the value would be the better.

hypothesis:

H0: there is no difference between pretest and posttest.

H1: there is a difference between pretest and posttest.

Based on the analysis of data obtained value of t-test = 19.068 with sig. (2 - tailed) =

0.000 < α = 0.05 level, then there is enough reason to H0 is accepted, then H1 is accepted. So there is a statistically significant difference between pretest and posttest. Then when seen in the average value (the mean), it can be said that an increase in learning outcomes from pretest to posttest.

2. Testing Product Model

To determine the impact of the model on improving student learning outcomes in subjects KKPI using a web-based learning model, then conducted experiments with a pretest-posttest equivalent group. At this stage the selected one class at SMK Negeri 2 Makassar as the experimental group and one class at SMK Negeri 3 Makassar as a control group by giving each - the beginning of each test (pretest) and final test (posttest). Based on observations of the initial test and final test conducted at SMK 2 and SMK Negeri 3 Makassar Makassar by respondents as many as 32 students earned value - average pretest each - amounting to 46.25 and 36 146 with a standard deviation of 20.40 and 12:09. The results of each test - each group are presented in the following table:

Tabel 5.Description of Test Data end (posttest) experimental class

Keterangan	Pretest (Kontrol)	Posttest (Kontrol I)	Pretest (Eksperimen)	Posttest (Eksperimen)
Rata rata	36.1459	56.1469	46.2500	87.2922
Median	36.6700	56.6700	41.6650	86.6700
Modus	33.33 ^a	66.67	26.67 ^a	80.00
StandarDeviasi	12.09599	13.03700	20.40302	7.15605
Variansi	146.313	169.963	416.283	51.209
Jangkauan (range)	50.00	56.66	73.34	23.33
Minimum	13.33	36.67	13.33	76.67
Maksimum	63.33	93.33	86.67	100.00
Jumlah data	1156.67	1796.70	1480.00	2793.35

Normality test

From the results of the Kolmogorov-Smirnov test at 4:10 and 4:11 in the table

above, the information obtained was that great a significance value for the Kolmogorov-Smirnov test students' test results before treatment (pretest) and after treatment (posttest) in the control group and the experimental group. Basis for decision making is asymp. significance if the value is greater than 0.05, then the data is categorized meet the assumption of normality. From the Kolmogorov-Smirnov test results appear in the table at 4.10 significance value asymp each - amounting to 0,852 to pretest and value asympsig . 0,782 to pos-test. This means that the value of such a value that indicates that the students on the pretest and posttest for the control group had a normal distribution of data observations, because the value Asymp. Significance greater than 0.05. Similarly in Table 4:11 acquired sig. 0462 for the pretest and sig . 0.200 to posttest can be concluded that the value of the students in the experimental group also meet the assumption of normality.

Two independent samples t test

Two independent samples t-test (Independent sample t-test) is also called the between- subjects t-test performed if you want to determine whether the value - average target variable in a different group with a value - average target variable in the different groups. This test is only valid if the two groups being compared have a member who really-really different. Levene's Test for Equality of variances (F test) to test the basic assumptions of the t - test that the variances of both groups was similar (homogeneous).

Statistical hypothesis :

H0 : Both groups have the same variance

H1 : Both groups had unequal variances

If the calculated $F \leq F$ table , then H0 is accepted

If F count > F table , then H0 is rejected or

If sig \geq , then H0 is accepted

If sig < , then H0 is rejected

Based on the analysis of data obtained sig . = 0.005 < = 0.05 level , then H0 is rejected . So both groups have a variant that is not homogeneous . The next test put a value on

the bottom line (equal variances not assumed) .

hypothesis :

H0 : there is no difference in the results of the initial test group with the control experiment

H1 : There are differences in the results of the initial test group with the control experiment

By testing criteria :

If $t \leq t$ table and $-t \geq t$ table , then Ho is accepted

If t count > t table or $-t < -t$ table , then Ho is rejected

or

If the Sig (2 - tailed) $\geq \alpha$, then Ho is accepted

If the Sig (2 - tailed) < α , then Ho is rejected

Based on the analysis of data obtained t value = 2.410 with sig .(2 - tailed) = 0:02 < = 0.05 level , then H1 is accepted . So there is a difference between the results of the initial test experimental group with the control group .

Levene 's Test for Equality of variances (F test) to test the basic assumptions of the t - test that the variances of both groups was similar (homogeneous) .

Statistical hypothesis :

H0 : Both groups have the same variance

H1 : Both groups had unequal variances

If the calculated $F \leq F$ table , then H0 is accepted

If F count > F table , then H0 is rejected or

If sig \geq , then H0 is accepted

If sig < , then H0 is rejected

Based on the analysis of data obtained sig . = 0.018 < = 0.05 level , then H0 is rejected . So both groups have a variant that is not homogeneous . The next test put a value on the bottom line (equal variances not assumed) .

hypothesis :

H0 : there is no difference in the final test results of experiments with the control group

H1 : There are differences in the results of the final test group with the control

experiment .
 By testing criteria :
 If $t \leq t_{table}$ and $-t \geq -t_{table}$, then H_0 is accepted
 If $t_{count} > t_{table}$ or $-t < -t_{table}$, then H_0 is rejected or If the Sig (2-tailed) $\geq \alpha$, then H_0 is accepted. If the Sig (2-tailed) $< \alpha$, then H_0 is rejected.

Based on the analysis of data obtained t value = 11.847 with sig . (2 - tailed) = 0.000 \leq 0.05 level , then H_1 is accepted . So there is a difference between the results of the final test experimental group with the control group .

CONCLUSIONS

Based on the results of research and discussion on the development of web-based learning model in the SMK , it can be stated conclusions that : 1) the effective use of web -based learning in SMK Makassar , obtained a mean score of 4.56 overall assessment results show very good results . And efficiently meet the criteria indicated by the assessment and learning process with a shorter time , greatly helped students , and students' independence in performing activities of practice can be achieved through the use of web-based learning ; 2) the impact of the implementation of the WEB -based learning model on learning outcomes in vocational subjects KKPI Makassar District based on the results of the analysis of data obtained t value = 11.847 with sig . (2 - tailed) = 0.000 \leq 0.05 level , then H_1 is accepted . So there is a difference between the results of the final test experimental group with the control group . Thus, students who learn to use the web-based learning is better than using the conventional method .

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